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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/719,887

11/21/2003

Keiji Yada

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03/03/2006

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EXAMINER

KAO, CHIH CHENG G

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

37

Office Action Summary	Application No. 10/719,887	Applicant(s) YADA ET AL.	
	Examiner Chih-Cheng Glen Kao	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2005 and 30 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Claim Objections***

1. Claims 1-6 and 8-10 are objected to because of the following informalities, which appear to be minor draft errors including grammatical and lack of antecedent basis problems.

In the following format (location of objection; suggestion for correction), the following corrections may obviate their respective objections: (claim 1, line 6, “the vicinity”; replacing “the” with - -a- -), (claim 1, line 15, “the basis”; replacing “the” with - -a- -), (claim 2, line 7, “the vicinity”; replacing “the” with - -a- -), (claim 2, line 11, “with reduced electron”; inserting - -a- - after “with”), (claim 2, line 12, “generating them”; replacing “them” with - -the electrons- -), (claim 3, line 1, “having-X-ray”; deleting the hyphen between “having” and “X”), (claim 3, line 7, “the vicinity”; replacing “the” with - -a- -), (claim 3, line 11, “with reduced electron”; inserting - -a- - after “with”), (claim 3, line 12, “generating them”; replacing “them” with - -the electrons- -), (claim 3, line 13, “generating portion,”; inserting - -and- - after the semi-colon), (claim 4, line 7, “the vicinity”; replacing “the” with - -a- -), (claim 4, line 11, “with reduced electron”; inserting - -a- - after “with”), (claim 4, line 12, “generating them”; replacing “them” with - -the electrons- -), (claim 5, line 7, “the vicinity”; replacing “the” with - -a- -), (claim 5, line 11, “with reduced electron”; inserting - -a- - after “with”), (claim 5, line 12, “generating them”; replacing “them” with - -the electrons- -), (claim 6, line 6, “the vicinity”; replacing “the” with - -a- -), (claim 8, line 1, “claim 3 wherein”; inserting a comma before “wherein”), (claim 9, line 1, “claim 4 wherein”; inserting a comma before “wherein”), and (claim 10, line 1, “claim 5 wherein”; inserting a comma before “wherein”).

For purposes of examination, the claims have been treated as such. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 6, the phrase "may be " in line 13 renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (US Patent 5044001) in view of Ishitani et al. (US Patent Application Publication 2003/0039386).

Wang discloses an apparatus comprising a magnetic superposition lens (fig. 2, #6) having a magnetic field generating portion disposed in a vicinity of an electron generating portion of an

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electron gun (fig. 2, #3), and a scan coil (fig. 2, #29) for freely swinging an electron probe, formed via said magnetic superposition lens (fig. 2, #6), on a surface of a target for X-ray generation (fig. 2, #12).

However, Wang fails to disclose reflected electron detecting means having a detecting portion disposed about a target for detecting a reflected electron from said target, and electron image generating means for performing imaging of a target surface utilizing signals from said reflected electron detecting means, wherein the apparatus is provided for allowing alignment operations including focus adjustment to said target and astigmatism correction to be performed on a basis of image information from the electron image.

Ishitani et al. teaches reflected electron detecting means having a detecting portion (fig. 1, #6) disposed about a target (fig. 1, #5) for detecting a reflected electron from said target, and electron image generating means for performing imaging of a target surface utilizing signals from said reflected electron detecting means (paragraph 17), wherein the apparatus is provided for allowing alignment operations including focus adjustment to said target and astigmatism correction to be performed on a basis of image information from the electron image (paragraph 66).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Wang with the imaging for correcting of Ishitani et al., since one would be motivated to make such a modification to obtain better resolution (paragraph 1) as implied from Ishitani et al.

4. Claims 2, 5, 7, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Veneklasen (US Patent 3862419).

5. Regarding claim 2, Wang discloses an apparatus as recited above. Wang further discloses an electron source having an electron generating portion (fig. 2, #3) and an anode (fig. 2, #4).

However, Wang fails to disclose a magnetic superposition lens disposed so that a magnetic field is superposed with an electric field formed by an electron source at least from an electron generating portion to an anode as a component element of electron accelerating means, so as to produce from said electron source a focused electron beam with a reduced electron beam loss amount by focusing the electrons while accelerating the electrons by said anode just after generating the electrons from the electron generating portion.

Veneklasen teaches a magnetic superposition lens (fig. 2, #16) disposed so that a magnetic field is necessarily superposed with an electric field formed by an electron source at least from an electron generating portion (fig. 2, #1) to an anode (fig. 2, #2 and 3) as a component element of electron accelerating means (fig. 2), so as to produce from said electron source a focused electron beam (fig. 2, in the middle of #16) with a reduced electron beam loss amount by focusing the electrons while accelerating the electrons by said anode (fig. 2, #2 and 3) just after generating the electrons from the electron generating portion (fig. 2, #1).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Wang with the focusing and accelerating of

Veneklasen, since one would be motivated to make such a modification for better focusing properties (col. 1, lines 23-37) as implied from Veneklasen.

6. Regarding claim 7, Wang further discloses wherein the electron generating portion is an electron gun (col. 8, line 39) having an ultra-high vacuum electron chamber (fig. 7, as evidenced by the evacuation port), and wherein the magnetic field generating portion (fig. 7, beam conditioning lens and focusing lens) is disposed outside the ultra-high vacuum electron chamber.

7. Regarding claims 5 and 10, Wang further discloses fluorescent X-ray detecting means having a detecting portion (fig. 1, #17 and 18, and col. 8, lines 67-68) disposed above said object (fig. 1, #14, and col. 8, lines 61-62) and outside an X-ray target (fig. 1, #12) for detecting a fluorescent X-ray generated from said object, and elemental analysis means for analyzing elements of said object based on fluorescent X-ray signals from said fluorescent X-ray detecting means (col. 7, line 52, to col. 8, line 6).

8. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Veneklasen and Sawahata et al. (US Patent 6555816).

Wang in view of Veneklasen suggests an apparatus as recited above.

However, Wang fails to disclose an electron beam axis alignment coil disposed in the vicinity of a generating portion of an electron generated from an electron source, for aligning an axis of an electron beam while accelerating the electron.

Sawahata et al. teaches an electron beam axis alignment coil (fig. 1, #22) disposed in the vicinity of the generating portion of an electron generated from said electron source (fig. 2, #2-4), for aligning an axis of an electron beam while accelerating the electron (fig. 2, #2-4).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Wang with the electron beam axis alignment coil of Sawahata et al., since one would be motivated to make such modification to deter divergence of electrons (fig. 1, #5) as shown by Sawahata et al., which would lower the intensity of radiation and signals derived from the object.

9. Claims 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Veneklasen and Wilkins (US Patent Application Publication 2001/0001010).

Wang in view of Veneklasen suggests an apparatus as recited above. Wang further discloses electron probe control means for scanning an electron beam (fig. 2, #29).

However, Wang fails to disclose X-ray CT image generating means for allowing a microstructure of a cross section of interest of said object to be displayed by processing plural sets of images based on data of transmitted X-rays of said object in response to said scanning.

Wilkins teaches X-ray CT image generating means for allowing a microstructure of a cross section of interest of said object to be displayed by processing plural sets of images based on data of transmitted X-rays of said object in response to said scanning (paragraph 113).

10. It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Wang with the X-ray CT image generating

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means of Wilkins, since one would be motivated to make such modification to obtain more imaging information.

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Moorman et al. (US Patent 6649914).

Wang discloses an apparatus as recited above.

However, Wang fails to disclose wherein a target comprises a plurality of target elements, the target elements being provided for generating different characteristic X-rays having different wavelengths, wherein the apparatus is arranged so that characteristic X-rays of a wavelength of interest are generated by swinging an electron probe to a target element appropriate for generating X-rays having the wavelength of interest, depending on a purpose of inspection.

Moorman et al. teaches wherein a target comprises a plurality of target elements, the target elements being provided for necessarily generating different characteristic X-rays having different wavelengths (col. 27, lines 21-32), wherein the apparatus is arranged so that characteristic X-rays of a wavelength of interest are generated by swinging an electron probe (fig. 1, #40) to a target element (fig. 1, #50) appropriate for generating X-rays having the wavelength of interest, depending on a purpose of inspection (col. 6, lines 31-50).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Wang with the target elements of Moorman et al., since one would be motivated to make such modification for better highlighting an area of interest in an image (col. 6, lines 31-50) as implied from Moorman et al.

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Note that the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, the limitation, with regards to target elements formed by a CVD method or a sputtering method, has not been given patentable weight.

Allowable Subject Matter

12. The indicated allowability of claims 1 and 6 is withdrawn in view of the newly discovered reference(s) to Ishitani et al. and Moorman et al. Rejections based on the newly cited reference(s) are as recited above.

Response to Arguments

13. Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

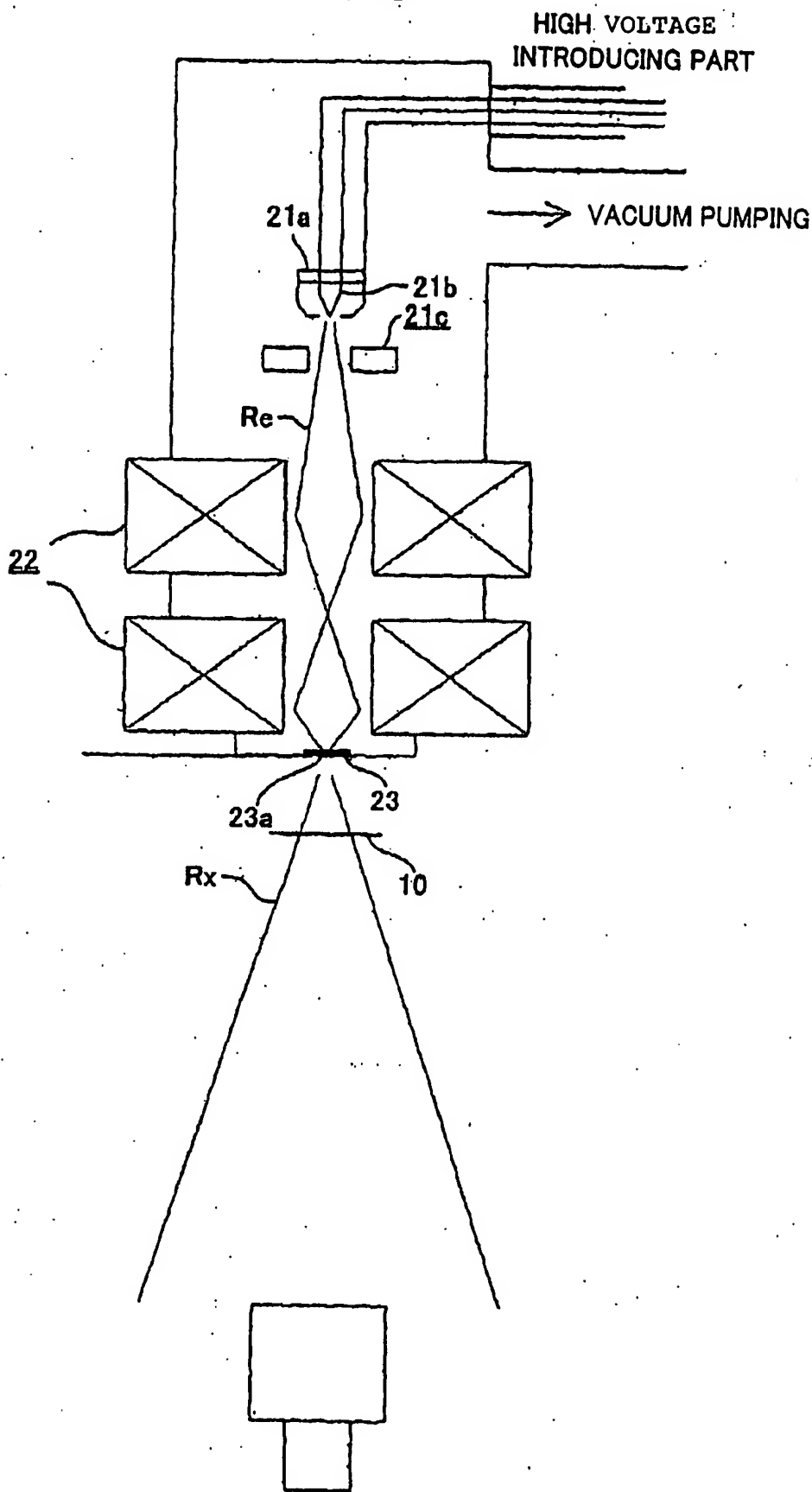
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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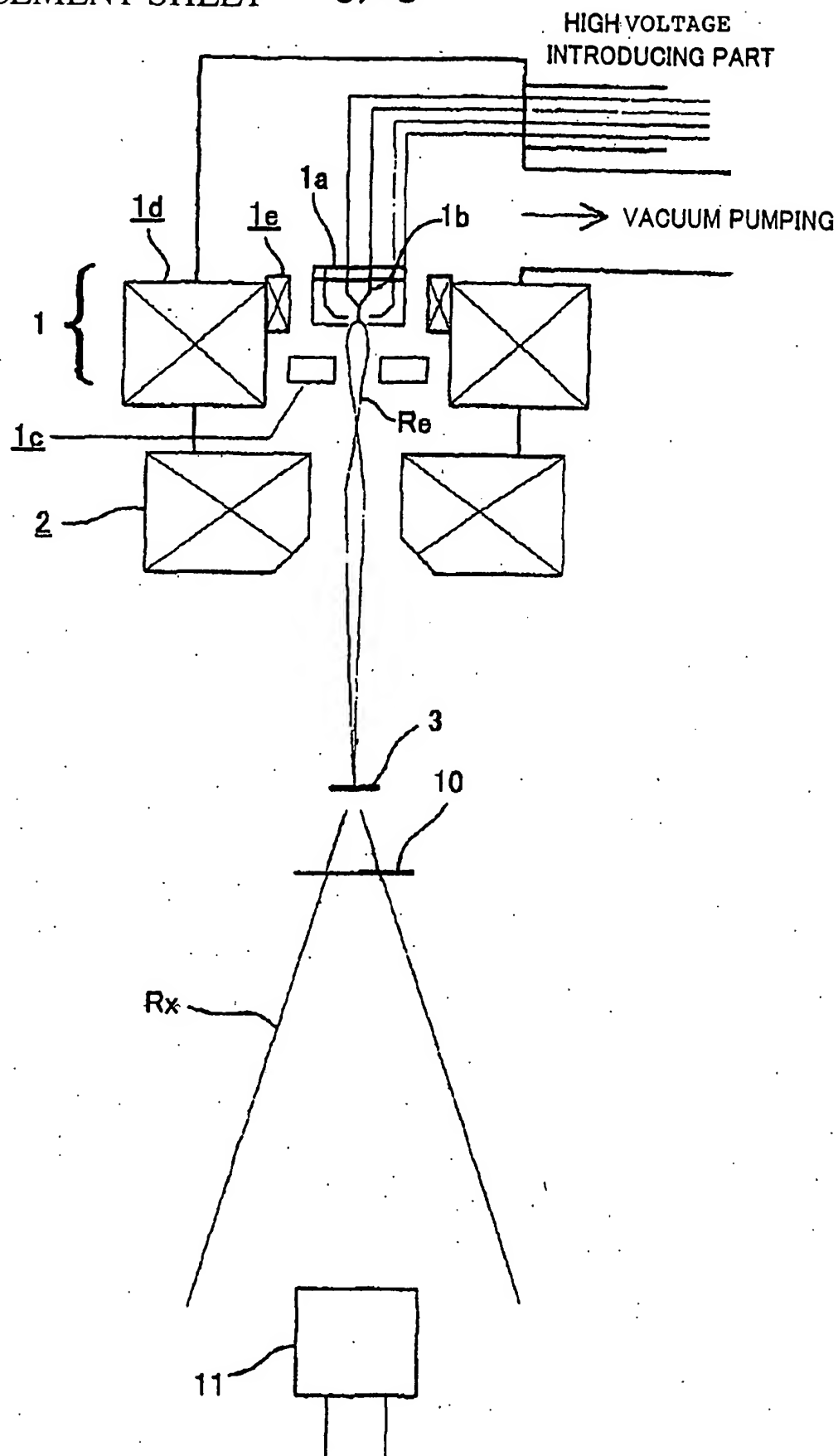
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gk
EDWARD J. CLICK
SUPERVISORY PATENT EXAMINER



Approved
 2/24/06

FIG.1 (Prior Art)



Approved
 2/22/06

FIG.3

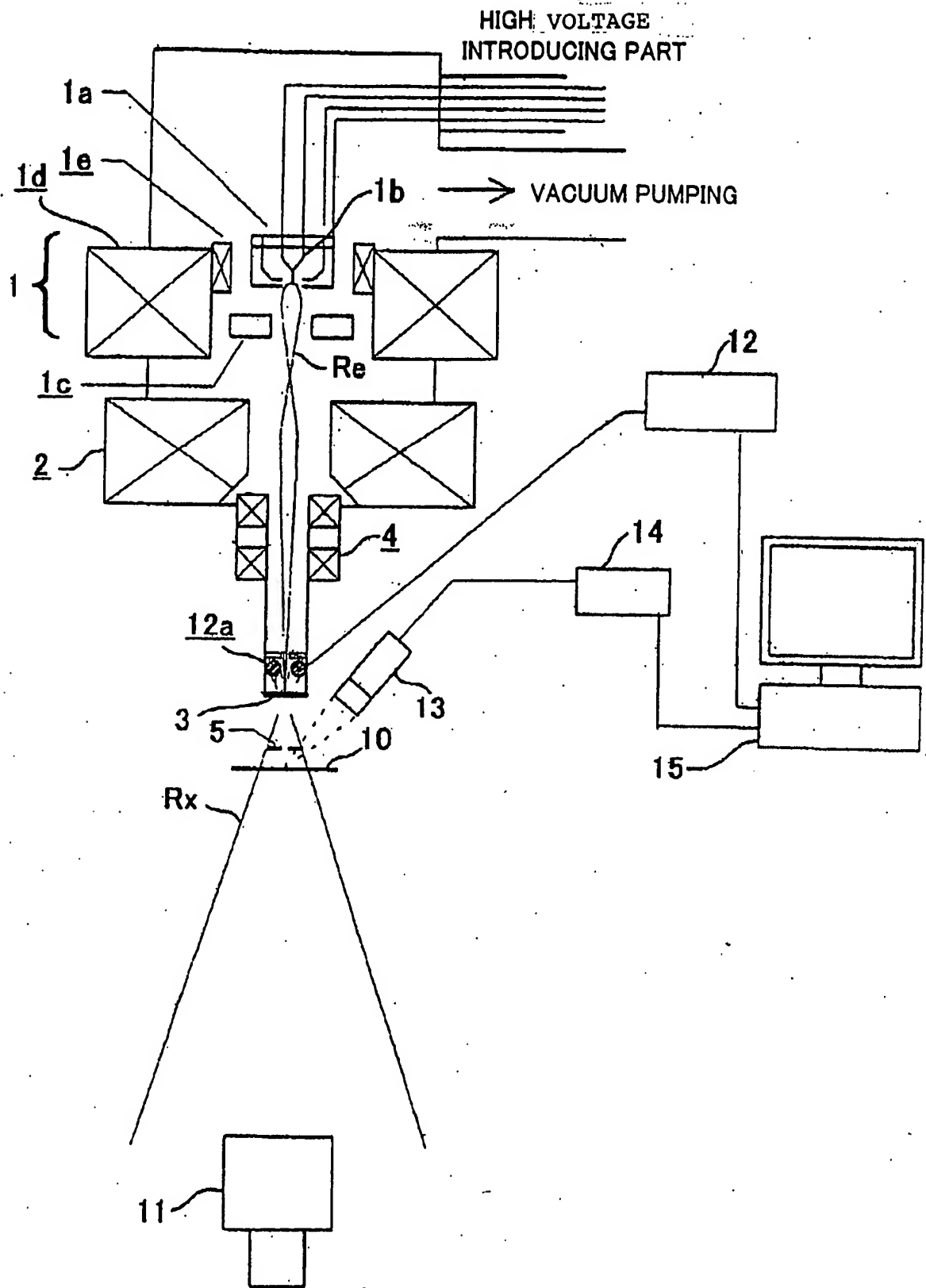


FIG.6

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